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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,943	01/21/2004	Vincent Hool	ALTRP107/A1363	5982
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BEYER WEAVER & THOMAS, LLP			WILLIAMS, ALEXANDER O	
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P.O. BOX 70250			PAPER NUMBER	
OAKLAND, CA 94612-0250			2826	

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/762,943

Applicant(s)

HOOL, VINCENT

Examiner

Alexander O. Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 3, 6, 7 and 15-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5 and 8 to 14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Serial Number: 10/762943 Attorney's Docket #: ALTRP107/A1363
Filing Date: 1/21/04;

Applicant: Vincent Hool et al.

Examiner: Alexander Williams

Applicant's election of the species IV, figure 4B (claims 1, 2, 4, 5 and 8 to 14), filed 10/28/05, has been acknowledged.

This application contains claims 3, 6, 7 and 15 to 35 drawn to an invention non-elected with traverse.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The use of the trademark on page 9, line 15 and throughout the specification has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 5 and 8 to 14 are rejected under 35 U.S.C. § 102(b) as being anticipated by Bhattacharyya et al. (U.S. Patent # 5,475,565).

1. Bhattacharyya et al. (figures 1 to 5) specifically figures 1 and 1A show a heat spreader **10,1A** having a top surface and a bottom surface, comprising: a bypass capacitor **28** embedded within the heat spreader, the bypass capacitor having a first plate, a second plate, a dielectric between the first and second plates, a first terminal coupled to the first plate, and a second terminal **30** coupled to the second plate, wherein the first terminal **30** and the first plate are electrically insulated from the second terminal and the second plate.
2. The heat spreader of claim 1, Bhattacharyya et al. show wherein the bypass capacitor **28** is embedded within a lid **10** of the heat spreader.
4. The heat spreader of claim 2, Bhattacharyya et al. show wherein the bypass capacitor is embedded within the lid where the first and second plates are in a wrapped-type construction.
5. The heat spreader of claim 1, Bhattacharyya et al. show wherein the first terminal and the second terminal are located on the bottom surface of the heat spreader.

8. The heat spreader of claim 1, Bhattacharyya et al. show wherein the bypass capacitor is embedded within a stiffener of the heat spreader.
9. The heat spreader of claim 1, Bhattacharyya et al. further comprising: a second bypass capacitor embedded within the heat spreader, the second bypass capacitor having a third plate, a fourth plate, a second dielectric between the third and fourth plates, a third terminal coupled to the third plate, and a fourth terminal coupled to the fourth plate, wherein the third terminal and the third plate are electrically insulated from the fourth terminal and the fourth plate.
10. The heat spreader of claim 9, Bhattacharyya et al. show wherein the second bypass capacitor is embedded within a stiffener of the heat spreader.
11. The heat spreader of claim 10, Bhattacharyya et al. show wherein the second bypass capacitor is embedded within the stiffener where the third and fourth plates are in a comb-type construction.
12. The heat spreader of claim 10, Bhattacharyya et al. show wherein the second bypass capacitor is embedded within the stiffener where the third and fourth plates are in a wrapped-type construction.
13. The heat spreader of claim 1, Bhattacharyya et al. show wherein the first and second plates are made of a material selected from the group consisting of Cu, Al, Pt, and Au.
14. The heat spreader of claim 1, Bhattacharyya et al. show wherein the first and second dielectrics have a dielectric constant in the range of 10 and 1000.

(8) Large integrated circuits such as a microprocessor can generate over 20 watts of heat. The thermal impedance of the package must be low enough to ensure that the junction temperatures of the integrated circuit are within safe operating limits. Heat sinks are sometimes incorporated into electronic packages to reduce the thermal impedance of the package. It would be desirable to provide a low cost electronic package which contains a heat sink, a decoupling capacitor for the integrated circuit and means for reducing the noise of power provided to the IC.

Claims 1, 2, 4, 5, 8 13 and 14 are rejected under 35 U.S.C. § 102(b) as being anticipated by Hathaway et al. (U.S. Patent # 6,225,696 B1).

1. Hathaway et al. (figures 1 to 5) specifically figure 1 show a heat spreader **20** having a top surface and a bottom surface, comprising: a bypass capacitor **32** embedded within the heat spreader, the bypass capacitor having a first plate, a second plate, a dielectric **(inherent within the capacitor)** between the first and second plates, a first terminal coupled to the first plate, and a second terminal coupled to the second plate, wherein the first terminal and the first plate are electrically insulated from the second terminal and the second plate.
2. The heat spreader of claim 1, Hathaway et al. show wherein the bypass capacitor is embedded within a lid of the heat spreader.
4. The heat spreader of claim 2, Hathaway et al. show wherein the bypass capacitor is embedded within the lid where the first and second plates are in a wrapped-type construction.
5. The heat spreader of claim 1, Hathaway et al. show wherein the first terminal and the second terminal are located on the bottom surface of the heat spreader.
8. The heat spreader of claim 1, Hathaway et al. show wherein the bypass capacitor is embedded within a stiffener of the heat spreader.
13. The heat spreader of claim 1, wherein the first and second plates are made of a material selected from the group consisting of Cu, Al, Pt, and Au.
14. The heat spreader of claim 1, wherein the first and second dielectrics have a dielectric constant in the range of 10 and 1000.

ABSTRACT:

An advanced electronics package for integrating electronic components of an electronic circuit, such as RF circuits. An important aspect of the invention relates to the simplicity in forming and integrating the electronic components in the package relative to known electronics packages. In one embodiment of the invention, various ceramic preforms are utilized which may be cast with temperature durable electronic components or formed as interconnect channels or feedthroughs. The preforms, in

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turn, are adapted to be cast into a composite housing, for example, an aluminum silicon carbide (AlSiC) housing. The component preforms may include resistors, capacitors, and inductors. In addition, RF pins as well as DC pads may be cast in the housing. The electronic components are electrically coupled to an interconnect channel or feedthrough. Interconnections by way of the interconnect channels or feedthroughs within the package may be made by way of metal infusion of a metal, such as aluminum, into the ceramic of the interconnect channels. In an alternate embodiment of the invention, a polymer based integrated package, formed from a polymer, is molded around a cast base which acts as a heat sink. Interconnection between the various electronic components is made by either molding interconnect metal tracings in the polymer housing or by way of interconnection vias which are filled with polymer based conductive paste or immersion plating. In both embodiments, interconnections between electronic components forming the electronic circuit are made without the use of glass feedthroughs which greatly simplifies the cost and complexity of the package.

The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/676,675,712,713,717,719,720,710,706,704,528,523,728, 361/514,697,709,695,704,710	11/20/05
Other Documentation: foreign patents and literature in 257/676,675,712,713,717,719,720,710,706,704,528,523,728, 361/514,697,709,695,704,710	11/20/05
Electronic data base(s): U.S. Patents EAST	11/20/05

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O. Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30AM-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander O Williams
Primary Examiner
Art Unit 2826

AOW
11/20/05